

Containment of a COVID-19 Outbreak in an Inpatient Geriatric Psychiatry Unit

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Abstract

OBJECTIVES: The first known COVID-19 outbreak in a long-term care facility in the United States was identified on February 28, 2020, in King County, Washington. That facility became the initial U.S. epicenter of the COVID-19 pandemic when they discovered 129 cases associated with the outbreak (81 residents, 34 staff members, and 14 visitors) and 23 persons died. The vulnerability of the elderly population, shared living and social spaces, suboptimal infection control practices, and prolonged contact between residents were identified as contributing factors to the rapid spread of the disease. The first known case of a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) outbreak in a U.S. inpatient geriatric psychiatry unit was also in King County, Washington, and occurred soon afterward on March 11th, 2020. Between March 11 and March 18, nine inpatients and seven staff members were confirmed to have SARS-CoV-2 infection. This article examines how the swift identification and isolation of confirmed patients, an enhanced infection prevention protocol, and engagement of frontline psychiatric care staff prevented a catastrophic outcome in a vulnerable population. **METHODS:** Here we describe infection control and nursing-led interventions that were quickly enacted in response to this SARS-CoV-2 outbreak in an inpatient geriatric psychiatry unit. **RESULTS:** The interventions effectively contained the outbreak, with no further patients and only one staff member testing positive for SARS-CoV-2 over the subsequent 2-month time period. **CONCLUSIONS:** We share our learnings and preventative infection control measures that can be adapted to a variety of settings to prevent or contain future outbreaks of COVID-19.

Keywords

COVID-19, geriatric psychiatric nursing, outbreak, SARS-CoV-2, inpatient psychiatry

Objective

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first identified in Wuhan City, China, in the fall of 2019 and has since spread globally (Hamm, 2020). SARS-CoV-2 infection can present in a varied manner: symptoms can be mild, such as those associated with the common cold or influenza, to severe, resulting in pneumonia, respiratory distress, renal failure, and even death (Hamm, 2020). A smaller percentage of people have been shown to test positive while remaining asymptomatic (Corcorran et al., 2020). Elderly people older than 60 years with medical comorbidities have a higher incidence of mortality associated with SARS-CoV-2 infection (Bhatraju et al., 2020; Etard et al., 2020). Outbreaks in residential long-term care or geriatric care units with shared living, dining, and social spaces can have a devastating impact on this vulnerable patient population

(Kimball et al., 2020). Rapid identification of symptoms, confirmation of testing status, isolation of affected patients, and an enhanced infection prevention protocol

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with the use of a trained observer for doffing personal protective equipment (PPE) can reduce transmission in high-risk settings. Here we describe efforts taken to contain an outbreak of COVID-19 in an inpatient geriatric psychiatry unit.

Methods

The information presented in this article is based on a retroactive review of staff engagement and enhanced infection control practices that led to the containment of an outbreak of SARS-CoV-2 that occurred from March 11 to May 5, 2020, in an inpatient geriatric psychiatric unit with separate, but adjacent, locked East and West wings in King County, Washington. More detailed methods regarding the outbreak identification, repeat testing, and detection of viral shedding in SARS-CoV-2 have been previously described (Corcorran et al., 2020).

Results

Following the identification of two index cases of COVID-19 in a 27-bed geropsychiatric inpatient unit at the University of Washington Medical Center-Northwest Campus on March 11, all patients on both the East (16-bed) and the West (11-bed) were immediately isolated in special droplet/contact precautions, which included isolation in a private or semiprivate room and all staff wearing a disposable gown, gloves, and surgical mask with eye protection before entering each room, according to the Washington State Department of Health (2020) guidelines. All patients on the unit were subsequently tested for SARS-CoV-2 via nasal swab, with an additional seven patients ultimately testing positive for COVID-19. Patients who tested negative twice were removed from isolation precautions.

SARS-CoV-2 patients were initially transferred from the psychiatric care unit to an acute care medical/surgical unit on March 12, once diagnoses were confirmed via nasal swab. However, the behavioral needs of this challenging patient population led to an increase in the use of behavioral restraints and verbalized frustration on the part of the acute care staff, resulting in a decision to return all but one of the COVID-19 positive patients to the geriatric psychiatry unit on March 15, 2020. One patient remained in acute care due to illness severity and ultimately passed away on March 20 after a goals-of-care conversation between the patient's family and the palliative care team. One additional patient who had been discharged on March 11 and later tested positive and recovered at home is excluded from this discussion. On return to the geriatric psychiatry unit, all COVID-19 positive inpatients were isolated on the locked East wing and serially retested until testing negative with two

consecutive negative nasal swab tests, at which point they were transferred to the adjacent locked West wing.

A checklist was developed for PPE donning (Figure 1) and doffing (Figure 2) to be used by a trained observer per guidance through the Centers for Disease Control and Prevention (CDC, 2020). Trained observers were a combination of local staff and displaced clinical and nonclinical staff from elsewhere in the hospital whose sole responsibility was to guide each health care team member in appropriately donning and doffing PPE (CDC, 2020). Trained observers were educated through a 1-hour didactic session by the hospital Professional Nursing Development Department, and updated checklists were posted outside each patient room.

In addition to support from the trained observers, the behavioral health clinical nurse specialist and the nurse manager rounded on all shifts, at first several times daily and then several times a week for just-in-time training and to elicit feedback, identify gaps and needed resources, and to field requests from frontline staff and trained observers. Checklist updates included frontline staff requests for clarification; evolving guidance, as it emerged from the CDC; and guidance for the safe reuse of PPE, as the supplies began to dwindle. The universal use of face masks by all staff at all times while in the entire hospital was instituted on April 27.

Trained observers were critical to the success of the unit, both in the safety of donning and doffing PPE and also in managing challenging situations in a psychiatric setting that posed greater risk of cross-contamination. In several instances, they helped guide COVID-19 patients with behavioral challenges, who were inadvertently exposing staff, back to their isolation rooms. In one instance, a Code Gray event was called for a significant behavioral disturbance from a patient with COVID-19 and dementia. The trained observer stepped in to guide staff to don PPE before approaching the patient, who had escaped his private room where he had been isolated on the East wing and was creating a behavioral disturbance while contaminating a common East-wing patient area. The trained observer was again essential in supporting safe doffing and decontaminating equipment and spaces affected by the incident.

In continued efforts to prevent cross-contamination, the team also devised best-practice ways to manage waste and linen. Contaminated trash and linen were kept in patient rooms, near the door, whenever possible, and were collected twice daily by housekeeping staff. For patients with suicidal ideation, trash and linen could be kept just outside the door of a patient room, and the checklist was modified slightly under the guidance of a trained observer. All meals were served on disposable trays and were disposed of in the trash bin inside the patient's room, whenever possible.

Step #:	Action:
1	Remove all jewelry/watches/ID badge and empty pockets, including phone. Wear short sleeve, hospital-issued scrubs only (unless long sleeves are a cultural requirement) and hair pulled back/pinned into place.
2	Perform hand hygiene.
3	Don blue Isolation gown.
4	Don gloves (these are your "skin layer" that will not come off in patient room).
5	Don surgical mask with integrated face shield or surgical mask and goggles* or surgical mask with additional full-face shield** (mold the nose piece of the surgical mask over the bridge of the nose to obtain a tight seal). *Goggles can be disinfected and re-used indefinitely for one healthcare worker only. **Plastic full face-shields can be disinfected and reused for one shift for one healthcare worker only. <i>Note: If performing nasal-swab COVID test on a symptomatic patient, it is preferred to don a plastic face shield over your surgical mask in lieu of goggles.</i>
6	Perform hand hygiene directly over "skin" glove layer.
7	If entering "hot zone" on cohorted unit: <ul style="list-style-type: none"> Don 2nd pair of gloves over "skin glove" layer. (Between care activities that require glove changes AND between patient rooms, remove 2nd layer of gloves, hand gel over "skin glove" layer (wait for it to dry) and don a new 2nd pair of gloves.) If entering patient room directly: <ul style="list-style-type: none"> If needed, don 2nd pair gloves over "skin layer" for specific patient care activities that require gloves. (IMPORTANT: Gloves are to be considered your "skin" in the room/hot zone and if additional gloves are needed for patient care, a 2nd pair of gloves may be donned over the "skin" glove layer. Hand hygiene directly over the "skin" glove layer when changing gloves in patient room.)
8	Have colleague inspect all PPE for tears, wrist coverage, other issues.

Figure 1. Special droplet/contact precautions: Donning personal protective equipment.

In addition to enhanced PPE precautions, the unit also took the added steps of prohibiting outside visitation to the unit and closing to new admissions after the initial positive case on March 12th until April 2nd. Once new admissions were again accepted on only the West wing, the remaining COVID-19 positive patients remained cohorted on the East wing. Newly admitted patients were screened for SARS-CoV-2 before admission and again 72 hours later to confirm negative status. Confirming negative status of the incoming patients was paramount as efforts to encourage face mask use by psychiatric patients were not effective, both from a safety (ligature risk) and a practicality standpoint. Staff were not confined to working in a specific wing but continued optimal infection prevention practices.

On April 2, the unit was turned into a "Hot Zone" for the COVID-19 positive patients. This enabled them to share common spaces, such as a dining and activity room, which are important components of a psychiatric milieu. Red tape on the floor designated the "Hot Zone," and staff donned PPE before entering and then changed only a top layer of gloves between patients. They remained in the same gown, surgical mask with face shield, and base "skin" layer of gloves, removing the top layer of gloves, hand sanitizing over the base layer, and donning a clean top layer of gloves between patients. A second piece of blue tape on the floor indicated the "Warm Zone," where a posted checklist and trained observer guided staff to correctly doff PPE. The "Hot Zone" design allowed


Step #	Action:
1	Healthcare Worker advises they are ready to exit the room/hot zone.
2	Trained Observer remains outside the room or "hot zone"; If room, door is closed or slightly opened to allow communication (keep closed if there is a window).
BEFORE EXITING ROOM/HOT ZONE:	
3	<ul style="list-style-type: none"> If exiting room, Healthcare Worker wipes down inside door handle with Sani-wipe and does not touch door handle again. If Healthcare worker exiting room, Trained Observer performs hand hygiene, dons gloves, wipes outside door handle with Sani-wipe, removes gloves, performs hand hygiene.
4	Trained Observer tells Healthcare Worker: "TURN AWAY FROM THE DOOR/WARM ZONE, FACE PATIENT AND REMOVE YOUR GOWN AND GLOVES IN ONE COMPLETE MOTION, ROLLING THE GOWN AWAY FROM YOU, REMOVING GLOVES LAST. DISPOSE OF THE GOWN AND GLOVES IN THE WASTE BIN, GLOVES INSIDE THE GOWN"
5	Trained Observer tells Healthcare Worker: "PERFORM HAND HYGIENE"
6	If in room, Trained Observer opens door for Healthcare Worker to exit, then closes door.
OUTSIDE PATIENT ROOM/HOT ZONE:	
7	Trained Observer gives Healthcare Worker hand sanitizer and Healthcare Worker dons clean gloves.
8	<p>Steps for removing surgical mask/eye protection WITHOUT TOUCHING THE FRONT:</p>  <p>Trained Observer guides Healthcare Worker to remove surgical mask/eye protection: If wearing surgical mask with integrated eye shield with ear straps:</p> <ul style="list-style-type: none"> Leans over waste bin Removes surgical mask by grabbing straps by the ears and disposing in waste bin <p>If wearing surgical mask* with goggles or plastic face shield:</p> <ul style="list-style-type: none"> Trained Observer dons clean gloves to help Healthcare Worker, as needed. Trained Observer or Healthcare Worker removes goggles or removes face shield by grabbing strap and holding tension, pulls strap up and over head. <ul style="list-style-type: none"> Uses Sani-wipe to thoroughly clean all plastic surfaces of goggles/face shield (and the elastic and foam band of face shield), sufficiently applying disinfectant to each surface to ensure appropriate contact time and sets disinfected PPE on clean surface and allows to dry. Remover of face shield/goggles (Trained Observer or HCW) removes gloves, performs hand hygiene and dons clean gloves. Healthcare Worker must have clean hands and new gloves to do this step—leans over waste bin and removes surgical mask by grabbing straps by the ears and disposing in waste bin. <p><i>*Note: If wearing a universal mask, HCW must have worn a face shield over it while in room/hot zone to be able to continue wearing it. If not, mask should be removed and replaced upon exiting.</i></p>
9	Trained Observer tells Healthcare Worker: "REMOVE GLOVES AND PERFORM HAND HYGIENE"
10	If Healthcare Worker was wearing glasses in the room/hot zone, proceeds to a sink and washes them with soap and water.
11	<p>If re-using goggles or plastic full-face shield, Trained Observer:</p> <ul style="list-style-type: none"> Places disinfected face shield in paper bag with HCW's name, to be disposed of at end of shift. Places disinfected goggles in paper bag/on paper towel with HCW's name, to be reused indefinitely. Removes gloves and performs hand hygiene.

Figure 2. Special droplet/contact precautions: Doffing personal protective equipment—trained observer required.

patients to move freely between private or shared rooms and the activity room for exercise.

The multidisciplinary team came together to meet the needs of the unit in a myriad impactful ways. Staff

provided excellent basic care to this vulnerable patient population, including ensuring optimal nutrition and hydration during recovery from COVID-19. Staff-led interventions included creating a changing room for

donning hospital-provided scrubs before each shift and for removal and containment in a designated hamper postshift. Staff were also creative in providing individualized therapeutic interventions to prevent decompensation on a psychiatric care unit, as usual group therapy sessions were minimal during the peak time.

A recreational therapist took on the role of contacting all family members of affected patients, as they were no longer permitted to visit their loved ones, due to COVID-19-restricted visitation policies. She used technology, such as Facetime, when possible, to keep patients connected to their families. This effort helped alleviate moral distress among the staff attributed to the restrictions in visitation and the impact thereof on patients and families.

Staff exposure to COVID-19 was also a significant risk and concern during this outbreak. Two staff members tested positive for SARS-CoV-2 via nasal swab just after the first two patients were identified. After this finding, the entire team of 72 registered nurses, certified nursing assistants, social workers, therapists, and administrative staff were offered testing. An additional five staff members were identified as being infected with COVID-19. Positive staff members were quarantined at home for a minimum of 10 days from diagnosis and had to report being symptom-free for at least 72 hours before returning to work.

The SARS-CoV-2 outbreak did not just affect staff workflow, it also affected their emotional well-being. In the early days of the U.S. outbreak, little was known about transmission of the virus, and fear was rampant among the frontline staff. The team expressed concerns over the safety of the patients, themselves, and their families. In the face of this uncertainty, the Medical Director of Infection Prevention and the Chief Nursing Officer provided a question and answer session, exhibiting compassion and concern for the patients and staff. They provided assurance for job security and for administrative leave for all team members who tested positive for SARS-CoV-2 during the outbreak. They provided transparency around evolving knowledge and changes to our system protocols. Staff displayed visible relief after this discussion, illustrating the integral role of supportive leadership and the collaboration of psychiatric and acute care services in the time of crisis. The Chief Nursing Officer and the Assistant Administrator of Behavioral Health Services also performed rounds on the unit at variable times throughout the 2-month period to determine how best to support staff. Signs were placed in the nurse's station and break rooms for staff to share ideas on how to better the process and sustain morale during this chaotic time. Staff were able to recognize one another through an already established unit-based peer recognition program that included cards given to a peer who had displayed extraordinary teamwork or gone above and beyond the call of service.

Conclusion

As the geropsychiatric unit COVID-19 patients recovered, the size of the "Hot Zone" shrunk until it included only two patient rooms on the East wing for the last 2 weeks of the outbreak. The last two remaining patients continued to test positive and remained isolated for a total of 54 days until two negative tests were attained, and the unit had effectively recovered eight of the nine confirmed inpatients.

After the initial identification of nine COVID-19 positive inpatients and seven staff members between March 11 and March 18, there were no additional inpatients identified and only one additional staff member who became symptomatic and tested positive weeks later on April 20. This staff member had also verbalized exposure outside of the work setting and had not worked within 8 days before the development of symptoms.

Eliciting input from frontline staff on improving the donning and doffing procedure proved to be an integral step in engaging frontline psychiatric care staff to embrace heightened infection prevention practices and the observed donning and doffing procedures that reduced the risk of cross-contamination. The trained observers played a key role in bedside coaching of frontline staff on optimal PPE donning and doffing practices. They followed the provided checklist but focused on the larger picture of reducing cross-contamination (CDC, 2020). Developing a culture of best practice also required peer accountability and engagement of staff in preventing the further spread of SARS-CoV-2 (Corcorran et al., 2020).

Infection prevention practices, including hand hygiene, reduction of cross-contamination, and adherence to isolation precautions, have long been known as integral practices to controlling the spread of disease in health care settings. It can be difficult to maintain stringent infection control practices in long-term care, geriatric and psychiatry care units with shared living, and dining and social spaces (McMichael et al., 2020). It is particularly important to control outbreaks in these settings, as they can have a devastating impact on the most vulnerable of patient populations. Rapid identification of symptoms, confirmation of testing status, engagement of frontline staff, isolation of affected patients, and an enhanced infection prevention protocol with the use of a trained observer for donning and doffing PPE can reduce transmission in high-risk psychiatry care settings.

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Author Roles

CCS and GR conceived the discussion paper and determined the methodology. All authors participated in the effort to contain the outbreak. SO performed data collection and case study reviews. CCS took the lead in writing and organizing the manuscript. All authors reviewed the final manuscript before submitting for publication.

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References

- Bhatraju, P., Ghassemieh, B., Nichols, M., Kim, R., Jerome, K. R., Nalla, A. K., Greninger, A. L., Pipavath, S., Wurfel, M. M., Evans, L., Kritek, P. A., West, T. E., Luks, A., Gerbino, A., Dale, C. R., Goldman, J. D., O'Mahony, S., & Mikacenic, C. (2020). COVID-19 in critically ill patients in the Seattle region-case series. *New England Journal of Medicine*, *382*(21), 2012-2022. <https://doi.org/10.1056/NEJMoa2004500>
- Centers for Disease Control and Prevention. (2020). *Ebola: Personal protective equipment (PPE) donning and doffing procedures*. https://www.cdc.gov/vhf/ebola/hcp/ppe-training/trained-observer/observer_01.html
- Corcorran, M., Olin, S., Rani, G., Nasenbeny, K., Constantino-Shor, C., Holmes, C., Quinnan-Hostein, L., Solan, W., Newman, G. S., Roxby, A. C., Greninger, A. L., Jerome, K. R., Neme, S., Lynch, J. B., Dellit, T. H., & Cohen, S. A. (2020). Prolonged persistence of PCR-detectable virus during an outbreak of SARS-CoV-2 in an inpatient geriatric psychiatry unit in King County, Washington. *American Journal of Infection Control*. Advance online publication. <https://doi.org/10.1016/j.ajic.2020.08.025>
- Etard, J., Vanhems, P., Atlani-Duault, L., & Ecochard, R. (2020). Potential lethal outbreak of coronavirus disease (COVID-19) among the elderly in retirement homes and long-term facilities. *Euro Surveillance Bulletin*, *25*(15), 11-13. <https://doi.org/10.2807/1560-7917.ES.2020.25.15.2000448>
- Hamm, R. (2020). Coronavirus disease 2019 (COVID-19): Prevention and control in the radiology department. *Radiology Technology*, *91*(5), 485-488.
- Kimball, A., Hatfield, K., Arons, M., James, A., Taylor, J., Spicer, K., Bardossy, A. C., Oakley, L. P., Tanwar, S., Chisty, Z., Bell, J. M., Methner, M., Harney, J., Jacobs, J. R., Carlson, C. M., McLaughlin, H. P., Stone, N., Clark, S., & Brostrom-Smith, C. CDC COVID-19 Investigation Team. (2020). Asymptomatic and presymptomatic SARS-CoV-2 infections in residents of a long-term care skilled nursing facility—King County, Washington, March 2020. *MMWR Morbidity and Mortality Weekly Report*, *69*(13), 377-381. <https://doi.org/10.15585/mmwr.mm6913e1>
- McMichael, T., Clark, S., Pogosjans, S., Kay, M., Lewis, J., Baer, A., Kawakami, V., Lukoff, M. D., Ferro, J., Brostrom-Smith, C., Riedo, F. X., Russell, D., Hiatt, B., Montgomery, P., Rao, A. K., Currie, D. W., Chow, E. J., Tobolowsky, F., Bardossy, A. C., & Oakley, L. P. CDC COVID-19 Investigation Team. (2020). COVID-19 in a long-term care facility-King County, Washington, February 27-March 9, 2020. *MMWR Morbidity and Mortality Weekly Report*, *69*(12), 339-342. <https://doi.org/10.15585/mmwr.mm6912e1>
- Washington State Department of Health. (2020). *Special droplet/contact precautions*. <https://www.doh.wa.gov/Emergencies/COVID19/HealthcareProviders>